

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Priority Application Serial No. 09/059,057
Priority Filing Date April 10, 1998
 Inventor Vishnu K. Agarwal et al.
 Assignee Micron Technology, Inc.
Priority Group Art Unit 2822
Priority Examiner M. Guerrero
 Attorney's Docket No. MI22-1299
 Title: Capacitors and Methods of Forming Capacitors

1c542 U.S. PTO
 09/428125
 10/26/99

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

References -- See Attached Form PTO-1449


In compliance with 37 C.F.R. §1.56, 1.97 and 1.98, your attention
 is directed to the United States patents and other references listed on
 the attached Form PTO-1449. No admission is made regarding whether
 all the submitted references are prior art.

The listed references were cited by, or submitted to , the Office
 in the parent, co-pending application of the above-identified application.
 The above-identified application is a divisional application of co-pending
 application Serial No. 09/059,057, filed April 10, 1998. Such prior
 disclosure is sufficient for the above-identified application as far as
 copies of the references are concerned. 37 C.F.R. §1.98(d) and MPEP
 §609(2).

Citation of these references is respectfully requested.

Respectfully submitted,

Dated: 10-26-99

By: 
 Mark S. Matkin
 Reg. No. 32,268

Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. M122-1299	SERIAL NO. 09/059,057			
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT VISHNU K. AGARWAL ET AL.				
				FILING DATE APRIL 10, 1998	GROUP 2822			
U.S. PATENT DOCUMENTS								
*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate	
	AA	09/033,063		AL-SHAREEF ET AL.			02/28/1998	
	AB	09/033,064		AL-SHAREEF ET AL.			02/28/1998	
	AC	09/058,612		AGARWAL ET AL.			04/10/1998	
	AD	09/083,257		AL-SHAREEF ET AL.			05/21/1998	
	AE	09/137,780		AL-SHAREEF ET AL.			08/20/1998	
	AF	09/074,638		AGARWAL ET AL.			05/07/1998	
	AG	08/858,027		SANDHU ET AL.			05/16/1997	
	AH	08/881,561		SANDHU ET AL.			06/24/1997	
	AI	09/086,389		SANDHU ET AL.			05/28/1998	
	AJ	09/122,473		SCHUEGRAF			07/23/1998	
	AK	09/098,035		DeBOER ET AL.			06/15/1998	
FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	AL							
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OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
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*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	AA	09/185,412		GRAETTINGER ET AL.			11/03/1998
	AB	09/229,518		DeBOER ET AL.			01/13/99
	AC	08/994,054		PAREKH ET AL.			08/97
	AD	08/670,644		GRAETTINGER ET AL.			
	AE	08/542,430		SCHUEGRAF			
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*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate	
	AA	5,930,584	07/99	SUN ET AL.				
	AB	5,910,218	06/99	PARK ET AL.				
	AC	5,279,985	01/1994	KAMIYAMA	437	60		
	AD	5,335,138	08/1994	SANDHU ET AL.	361	303		
	AE	5,372,859	12/1994	THAKOOR	427	551		
	AF	5,466,629	11/1995	MIHARA ET AL.	437	60		
	AG	5,510,651	04/1996	MANIAR ET AL.	257	751		
	AH	5,555,486	09/1996	KINGON ET AL.	361	305		
	AI	5,814,852	09/1998	SANDHU ET AL.	257	310		
	AJ	5,844,771	12/1998	GRAETTINGER ET AL.	361	303		
	AK	4,891,682	01/1990	YUSA ET AL.	357	30		
FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	AL	1-222469 A	05/1989	JAPAN				
	AM	06-021333	01/1994	JAPAN (Kato)			Abs.	
	AN	05-221644	08/1993	JAPAN (Munichiro et al.)			Abs.	
	AO							
	AP							
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
	AR		McINTYRE, Paul C. et al., <i>Kinetics and Mechanisms of TiN Oxidation Beneath Pt.TiN Films</i> , J. Appl. Phys.,					
			Vol. 82, No. 9, pp. 4577-4585 (11/1997).					
	AS		LESAICHERRE, P-Y et al., <i>A Gbit-Scale DRAM Stacked Capacitor Technology with ECR MOCVD SrTiO₃ and RIE Patterned</i>					
			<i>RuO₂/TiN Storage Nodes</i> , 1994 IEEE, pp. 831-834.					
	AT		ONISHI, Shigeo et al., <i>A Half-Micron Ferroelectric Memory Cell Technology With Stacked Capacitor Structure</i> ,					
			1994 IEEE, IDEM 94-843, pp. 843-846.					
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U.S. PATENT DOCUMENTS						
*Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	AA	5,079,191	01/1992	SHINRIKI ET AL.		
	AB	5,142,438	08/1992	REINBERG ET AL.		
	AC	5,234,556	08/1993	OISHI ET AL.		
	AD	5,316,982	05/1994	TANIGUCHI		
	AE	5,330,935	07/1994	DOBUZINSKY ET AL.		
	AF	5,352,623	10/1994	KAMIYAMA		
	AG	5,362,632	11/1994	MATHEWS		
	AH	5,468,687	11/1995	CARL ET AL.		
	AI	5,688,724	11/1997	YOON ET AL.		
	AJ	5,552,337	09/1996	KWON ET AL.		
	AK	5,348,894	09/1994	GNADÉ ET AL.		
FOREIGN PATENT DOCUMENTS						
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						Yes No
	AL					
	AM					
	AN					
	AO					
	AP					
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)						
	AR	KAMIYAMA, S. et al., <i>Ultrathin Tantalum Oxide Capacitor Dielectric Layers Fabricated Using Rapid Thermal Nitradation</i>				
		<i>Prior to Low Pressure Chemical Vapor Deposition</i> , J. Electrochem. Soc., Vol 140, No. 6, June 1993, pp. 1617-1625.				
	AS	EIMORI, T. et al., <i>A Newly Designed Planar Stacked Capacitor Cell with High Dielectric Constant Film for 256Mbit Dram</i> ,				
		1993 IEEE, pp. 631-634.				
	AT	YAMAGUCHI, H. et al., <i>Structural and Electrical Characterization of SrTiO₃ Thin Films Prepared by Metal Organic Chemical</i>				
		<i>Vapor Deposition</i> , Jpn. J. appl. Phys., Vol. 32, 1993, Pt. 1, No. 9B, pp. 4069-4073.				
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	AA	4,952,904	08/1990	JOHNSON ET AL.				
	AB	5,798,903	08/1998	DHOTE ET AL.				
	AC	5,790,366	08/1998	DESU ET AL.				
	AD	5,561,307	10/1996	MIHARA ET AL.				
	AE	5,508,953	04/1996	FUKUDA ET AL.				
	AF	5,293,510	03/1994	TAKENAKA				
	AG	5,191,510	03/1993	HUFFMAN				
	AH	5,053,917	10/1991	MIYASAKA ET AL.				
	AI	5,843,830	12/1998	GRAETTINGER ET AL.				
	AJ	5,838,035	11/1998	RAMESH				
	AK	5,837,593	11/1998	PARK ET AL.				
FOREIGN PATENT DOCUMENTS								
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							Yes	No
	AL							
	AM							
	AN							
	AO							
	AP							
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
	AR		FAZAN, P.C. et al., <i>A High-C Capacitor (20.4fF/μm²) with Ultrathin CVD-Ta₂O₅ Films Deposited on Rugged Poly-Si for High Density DRAMs</i> , 1992 IEEE, pp. 263-266.					
	AS		KAMIYAMA, S., et. al., <i>Highly Reliable 2.5nm Ta₂O₅ Capacitor Process Technology for 256Mbit DRAMs</i> , 1991 IEEE, pp. 827-830.					
	AT		FAROOQ, M.A. et al., <i>Tantalum nitride as a diffusion barrier between Pd₂Si, CoSi₂ and aluminum</i> , 1989 American Institute of Physics, pp. 3017-3022.					
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	AA	5,786,248	07/1998	SCHUEGRAF			
	AB	5,780,359	07/1998	BROWN ET AL.			
	AC	5,728,603	03/1998	EMESH ET AL.			
	AD	5,504,041	04/1996	SUMMERFELT			
	AE	5,471,364	11/1995	SUMMERFELT ET AL.			
	AF	5,654,222	08/1997	SANDHU ET AL.			
	AG	5,663,088	09/1997	SANDHU ET AL.			
	AH	5,442,213	08/1995	OKUDAIRA			
	AI	4,464,701	08/1984	ROBERTS ET AL.			
	AJ						
	AK						
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							Yes No
	AL						
	AM						
	AN						
	AO						
	AP						
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)							
	AR		S. Wolf and R.N. Tauber, <i>Silicon Processing for the VLSI Era</i> , Volume 2, Lattice Press, pages 589-591.				
	AS		Anonymous Research Disclosure, 1989RD-0299041 titled <i>Double High Dielectric Capacitor</i> , Derwent-Week 198917				
			(Derwent World Patent Index).				
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